Anglo-French contributions to the recognition of rheumatoid arthritis

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SUMMARY Early descriptions of rheumatoid arthritis in the English and French literature are reviewed. Charcot pointed out that the disease was recognised as distinct from gout in eighteenth century England, and pictorial evidence for this is presented. His own work on arthritis led to a series of noteworthy interactions with Alfred Baring Garrod, which are discussed.

The first detailed descriptions of rheumatoid arthritis which came from the Salpêtrière Hospital in Paris, are summarised. They began with Landré-Beauvais's doctoral thesis in 1800 and culminated in Charcot's early statistical analysis of a series of 41 cases published as his doctoral thesis in 1853. Illustrations by Jean Cruveilhier of his pathological studies at the Salpêtrière and Charcot's own drawings, leave no doubt that rheumatoid arthritis was being described. Some authorities believe that there are no clear earlier descriptions of the diseases and have proposed that it is of recent onset. However, there are probable descriptions by Sydenham in 1676 and Musgrave in 1703 in the English literature, and Charcot was the first to draw attention to them. Musgrave's contribution, which has remained unknown to more recent historians, is presented together with evidence that later eighteenth century physicians, including William Oliver and William Heberden, were familiar with a chronic arthritis, differing from gout and consistent with rheumatoid arthritis.

There were no illustrated English works on this subject until Robert Adams's famous atlas was published in 1857. However, internal evidence in William Heberden's Commentaries allows a new interpretation of a painting (1742) by William Hoare which hangs in the Royal National Hospital for Rheumatic Diseases. It is suggested that this illustrates 3 patients with rheumatoid-like arthritis involving the hands, leaving no doubt that the condition was recognised in eighteenth century England.

The term rheumatoid arthritis was first suggested in 1859 by Alfred Baring Garrod, who emphasised the differences from gout and rheumatic fever. This led to interesting exchanges between Garrod and Charcot, which are reviewed.

Rheumatoid arthritis at La Salpêtrière

The first detailed clinical descriptions of rheumatoid arthritis were based on studies of the exclusively female population of the Salpêtrière, Paris, the asylum and hospital for incurable conditions. Landré-Beauvais, working under Philippe Pinel, titled his doctoral dissertation 'Doit-on admettre une nouvelle espèce de goutte sous la dénomination de goutte asthénique primitive' (should one acknowledge a new kind of gout under the name of primary asthénic gout?). He described a chronic deforming polyarthritis characterised by remissions and exacerbations:

'On several occasions she experienced relapses; the joints of her hands, her wrists and her knees, already deformed during her first attack, became more and more twisted and swollen; the movements of her limbs remained very difficult. Moreover she was afflicted with a large number of nervous complaints. Pain and swelling returned during all very mild atmospheric variations' (p. 13). Landré-Beauvais commented on several differences from gout. These included its frequency in women, the frequent polyarticular onset, the less severe pain but chronic course, and the absence of tophi. The necropsy findings are particularly relevant:

'The articular surfaces are swollen, ulcerated and cornified; the extremes of the joints are softened and the joints sometimes become the foci of suppuration. It seems that in this type of gout, tophi are rare. In a very large number of autopsies performed at the Hospice of the Salpêtrière and in
which the deformities of the joints appeared to announce these concretions, one has not yet found any of them'. (pp. 22-23).

Landré-Beauvais's thesis was relatively unrecognised until Charcot published his own doctoral thesis on 'goutte asthénique primitive' in 1853. His simple statistical analysis of 41 cases is the forerunner of modern studies of rheumatoid arthritis. He pointed out that the condition accounted for 5% of all admissions to the sections for cripples at the Salpêtrière. He reviewed the symptoms, emphasising the frequency of night pain and the variable clinical course with remissions and exacerbations of the arthritis. He recognised the frequency of systemic features including night sweats, pallor, and anaemia. He reviewed the age of onset of the disease, the distribution of the joints involved, and the sequence of joint involvement, pointing out that the disease often began with pain and swelling of the small joints. He studied the mechanisms of joint contractures and was particularly interested in the deformities of the fingers. Possible aetiological factors which he considered included heredity, which appeared to be involved in 11 of his cases, the influence of cold and damp conditions, and the post-partum onset in several cases. Necropsies were performed in 6 cases and he noted inflammation of the synovial membrane, ulceration of the articular cartilage, and disruption of the intra-articular ligaments. His description of ulcerations at the periphery of the cartilage 'in continuity with the synovial membrane' is consistent with pannus formation. Tophi were not found. No cases were related to rheumatic fever. Charcot preferred the name chronic articular rheumatism and it was only in his later work that he broadened his definition of the condition to include Heberden's rheumatism (digitorum nodi), partial chronic articular rheumatism (including morbus coxae senilis), and acute articular rheumatism (rheumatic fever). His thesis includes several illustrations (Figs. 1a and 1b) which leave no doubt that he was, in fact, describing rheumatoid arthritis.
Jean Cruveilhier, also working at the Salpêtrière, had earlier (1829-35) published illustrations of classic rheumatoid deformities (Fig. 2) in his monumental work *Anatomie pathologique de corps humain*. He named the condition ‘usure (wearing out) des cartilages articulaires’ but recognised the importance of ‘une inflammation chronique de la synoviale’.

**But were the British first?**

Charcot’s writings are rich in historical allusions to rheumatoid arthritis. He was the first to draw attention to a passage in Sydenham’s works which appears to describe rheumatoid arthritis. This has been widely quoted subsequently. Dr Charles Short has recently retranslated part of this passage, emphasizing the description of hyper-extension deformities of the finger joints:

‘... the joints of his fingers having been, as it were inverted and bulging out with the knots showing on the inner rather than the outer aspects of the fingers. . . ’

**Fig. 2 Cruveilhier’s engravings of the rheumatoid hand, the role of ligaments in the production of hyperextension deformities of the fingers, and erosions of the carpal bones.**
Jean Martin Charcot also located another and more important early description of rheumatoid-like arthritis by William Musgrave (1657–1721) in his book *De arthritide symptomatica dissertatio*, which was published at Exeter in 1703. This is also said to include the earliest descriptions of arthritis complicating urethritis and neuropathic arthritis related to lead poisoning. Under the heading 'Rheumatismo Superveniens' he describes chronic deforming arthritis, differing from gout (section VI, pp. 23 and 24) and his description includes reference to the blood sedimentation rate in arthritis (section VII, p. 25).

Section VI: 'These pains are especially severe in autumn—that is, at the time of the year most favourable to fluxions (although it can by no means be asserted that other seasons are completely free of them)—and, when the disease is a chronic condition, they last for a long time often right through the entire winter period, frequently ceasing, it is true, but recurring with the least cold snap; this is a characteristic of rheumatism of long standing. The joints are swollen, there being some material stuffed into them and raising the skin into a white and, as it were, oedematous swelling. Hence movement of the digits is always hampered and is at times abolished. The digits are twisted in all directions and occasionally the hand is bent backwards, as is also the forearm, so that its inner part stands out.

When rheumatism has taken on anything of the character of arthritis it rarely relinquishes it, carrying it through mostly to the end of the life of the sufferer. Provided that all that is on the inside is healthy and unimpaired, the patient sometimes reaches extreme old age, albeit with damaged digits and joints and bitterly railing meanwhile against podagra as the bane and curse of mankind and as the most grievous evil, as if he, having experienced it, were qualified to bear witness (and yet he has, perhaps, never been affected with true gout).

Section VII: For although this condition vaunts some of the symptoms of *arthritide frigida*, yet, on careful consideration we see that the two conditions do not have a great deal in common. That the skin floating on blood which has been left to stand is dense (just as it is wont to be in rheumatism) and much denser than in arthritis is abundant proof of this. Further confirmation is that the jelly, no matter how long it has remained in the commissures, never hardens into tophi and that it is rarely confined to the commissures, since it burdens them and the internodes almost equally, and indeed most of all, that by no abuse of cardiac remedies, nor by the action and power of heating remedies, nor by any other cause is a condition having this deceptive appearance ever intensified into even the slightest arthritis paroxysm (contrary to what occurs in every sort of arthritis, whether primary or symptomatic, hot or cold.)

Apart from a brief and inaccurate mention by Llewellyn Jones this important description has remained unknown to modern authors. The distinction from podagra is emphasised and the clinical course of a chronic deforming arthritis, characterised by exacerbations and remissions, is well stated. In addition the description includes possibly the earliest recognition of the blood sedimentation rate in arthritis. This antedates Sir Richard Blackmore's observation in 1726 that: 'it is almost constantly observed, when the blood of these (rheumatic) patients is let out of their veins it coagulates at the top and forms there a thick, tenacious sизy skin of a buff colour', (p. 120). The observation that tophi were not present suggests pathological studies which were not mentioned by other authors until Landré-Beauvais's thesis of 1800. The recognition that 'internodes', that is, the limbs between the joints, were involved suggests that Musgrave was aware that muscles and tendons as well as joints were involved in the production of the deformities of the disease.

Kelly has suggested that Musgrave also described several cases of psoriatic arthritis, particularly in the chapter on 'Scorbutic arthritis.' His description of the cutaneous manifestations is certainly consistent with psoriasis:

'Dense, scurfy, rough, irritating papules with a purple margin, forming whole patches and usually beginning at the elbow; in drying up, these papules give rise to small, thin, whitish and furfuraceous scales, and when the latter have been shed, the skin exhibits a red and inflamed appearance' (section III, pp. 99–100).

Musgrave refers to these cutaneous features of 'scurvy' as a form of 'leprosy' which he states was once endemic in Devonshire where he practised, but which 'gradually assumed milder forms and more and more degenerated into scurvy'. The arthritis usually involved the joints of the feet and was 'mild but of long duration'.

These early descriptions of rheumatoid-like arthritis stand alone, possibly due to the preoccupation in eighteenth century England with the gout, which had become a fashionable disease. The numerous publications on arthritis during this period in England mainly relate to gout and its treatment, and there was little mention of other forms of arthritis until William Heberden's Commentaries were published posthumously by his son in 1802. This work was followed by John Haygarth's *A Clinical History... of the Nodosity of the Joints* published in 1805.
Both works were based on observations made years earlier. Heberden's manuscripts were written about 1782, and internal evidence in Haygarth's book suggests that his observations on an arthritis differing from gout, were formulated at about the same time. Like Landré-Beauvais's thesis, these early British descriptions were not illustrated and it was not until Robert Adams's atlas was published in 1857 that there was definite pictorial evidence of rheumatoid arthritis in an English work.

Although palaeopathological studies have revealed undoubted evidence of ankylosing spondylitis, the lesions of rheumatoid arthritis have not been found. Several authorities have commented on the absence of definite rheumatoid deformities in painting or sculpture before 1800, and have postulated that the disease is of recent onset. However, several paintings of the Flemish school (1400-1700) are said to show rheumatoid-like lesions of the hands, and more recently Appelboom and his colleagues have produced convincing evidence that Peter Paul Ruben's paintings of the period 1609-38 show progressive rheumatoid involvement of the hands, possibly autobiographical.

Jayson has drawn attention to a painting by William Hoare in 1742 which hangs in the Royal National Hospital for Rheumatic Diseases in Bath. It is believed to include one of the earliest deliberate pictorial representations of a patient with rheumatoid arthritis. The painting (Fig. 3), which was probably commissioned to commemorate the opening of the hospital in 1742, shows a Bath physician, Dr William Oliver (1695-1764) and a surgeon, Mr Jeremy Peirce, examining 3 patients who, according to the caption on the painting, were suffering from rheumatism, palsy, and leprosy. Leprosy was a term used loosely at the time for many skin conditions, and it is possible that the child's skin rash was psoriasis. Musgrave's descriptions and his use of the term leprosy are certainly consistent with this interpretation. It is usually assumed that the man in the centre has wrist drop as a result of lead palsy, a common condition according to subsequent hospital records. The

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Fig. 3  William Hoare's painting (1742) showing Dr Oliver (on the right) and Mr Jeremy Peirce looking at 3 patients said to have rheumatism, palsy, and leprosy.
woman at the left of the painting appears to have swelling of the metacarpophalangeal joints and ulna deviation of the fingers of the right hand, consistent with rheumatoid arthritis. However, Bywaters has questioned this interpretation, suggesting that she may be suffering from the palsy and that the child has swollen hands due to juvenile arthritis.23

William Hoare, the artist, Dr Oliver, and Mr Peirce were involved by Richard (Beau) Nash in the planning of the hospital from the time of the initial subscription list in 1737. They would have been well aware that the object of the hospital was the relief of rheumatic diseases amongst the beggars of Bath, and therefore it would not be surprising if the painting commissioned for the opening of the hospital depicted only persons suffering from such conditions. There is in fact a striking, and one could suggest deliberate, contrast in the painting between the slender fingers of Dr Oliver and Mr Peirce and the apparently swollen fingers of all 3 patients. There also appears to be swelling of the dorsal aspect of the man’s wrist, and Mr Peirce could well be examining for tenderness at the lower end of the left ulna. The appearances are certainly consistent with rheumatoid arthritis. The child’s hands also appear swollen and the presence of the rash suggests the possibility of juvenile arthritis related to psoriasis. Despite Bywaters’s suggestion, there seems no doubt about the typical rheumatoid deformity of the woman’s right hand. Although there are no references to a rheumatoid-like arthritis in William Oliver’s book on arthritis, this interpretation of the painting is supported by several passages in William Heberden’s Commentarii de morborum historia et curatione, London, 1802. Despite suggestions to the contrary5 there seems no doubt that Oliver, Heberden, and other eighteenth century physicians were familiar with chronic arthritis as distinct from acute rheumatism and gout. Heberden had requested that his manuscripts should be given to any of his sons ‘who may choose the profession of physic’. He died in 1801 and William Heberden, the younger, recognising their importance, published the Latin original and an English translation in 1802.15

The following extract is from chapter 9, ‘Arthritis’ pp. 33 to 35.

‘Though the toe be the usual place in which a regular gout first fixes itself, yet it will not very infrequently prefer the instep, the heel, or the ankle: but if the first attack be felt in any other part beside these, the continuance of such a pain, the returns of it, and its consequences, will differ so much from those of the ordinary gout, that it is either to be called a rheumatism or should be distinguished by some peculiar name from both these distempers. For, besides those cases which no one would scruple to call rheumatic, similar pains have been found to come on, and have not only, like the common rheumatism, continued for two or three months attacking by turns all the limbs; but have in their first year returned two or three times, and have continued to do so for some succeeding years. These pains are less violent than in the common gout, though the swellings are much greater: but the remarkable circumstance is the great and lasting feebleness which they occasion; so that the limbs have been more weakened by them in two years, than they usually are even by severe fits of the regular gout in twenty. The late Dr. Oliver of Bath told me, that he considered this disorder as partaking of the nature both of the rheumatism and palsy. In the cases which I have observed of this malady, whatever it be named, when the pain does not first attack the foot, and when its returns are so frequent, it has more usually come on after the sixtieth year, than before that age: yet there have been instances where young men have been made cripples by it long before they were thirty’.

Thus it appears that the use of the term palsy did not necessarily imply a neurological lesion and in the context of William Hoare’s painting, it may refer to the loss of the use of the hand due to arthritis. Heberden (1710–1801) and Oliver (1695–1764) obviously discussed chronic arthritis, having many of the features of rheumatoid disease. Heberden must have had particular respect for Oliver as only a few opinions or writings of other physicians are mentioned in the Commentaries. Heberden’s intention, outlined in his preface, was, in fact, to exclude such material and base his notes solely on his own observations. Oliver’s influence on Heberden is again apparent in chapter 79 on ‘Rheumatismus’ (p. 399), where there is further mention of the relationship between rheumatic disease and the palsy.

‘The rheumatism is undoubtedly nearly allied to the gout; and fits of it have been more common in children born of gouty parents; as if it were a prelude to what they were afterwards to suffer. Nor does this malady partake more of the gout, than of the palsy; there is always a trembling, weakness, and numbness left for some time in the limb affected, and in the chronic sort the use has at last in many been wholly taken away. A rheumatic pain in the shoulder of a woman gradually weakened the arm, till it became almost paralytic and useless: in six or seven months the motion of the arm began to return, and after the use of Buxton water, was perfectly restored’.

However, there is the qualification in chapter 69, ‘Paralysis et Apoplexia’ (p. 341):

‘Chronical rheumatisms, or imperfect gouts, after hanging on for many months, have deadened and perfectly destroyed all ability to stir the limbs
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affected; but this species of palsy has gone no further; so that the senses and faculties of the mind have still continued in their usual vigour. It is observable, that palsies arising from chronic rheumatisms, or imperfect gouts, affect chiefly the lower limbs; but those arising from the colica Pichtonum (lead poisoning) more usually affect only the arms and hands'.

Heberden's description of chronic rheumatism in chapter 79 (p. 400) again suggests rheumatoid arthritis.

'The chronical differs from the acute rheumatism in being joined with little or no fever, in having a duller pain, and commonly no redness, but the swellings are more permanent, and the disease of much longer duration; for if the acute species have continued some months, the other has continued for many years. It oftener happens that the fits return, at no certain intervals, till they have brought on a deplorable weakness, or entirely destroyed the health. Both kinds of the rheumatism attack indiscriminately males and females, rich and poor.

The rheumatism has appeared so early as in a child only four years old, and I have seen several afflicted with it at the age of nine years: in which it differs from the gout, which I have never observed before the years of puberty'.

Some of these passages have previously been quoted as evidence that William Heberden recognised rheumatoid arthritis.\(^{13}\) However, hitherto there has been no pictorial evidence of this. William Hoare's painting leaves little doubt that Oliver, Heberden, and other eighteenth century physicians were familiar with a form of chronic arthritis, differing from gout and now known as rheumatoid arthritis. Heberden's reference to William Oliver establishes the passages as a useful contemporary commentary on the painting. They provide support for the proposition that it illustrates 3 patients with rheumatoid-like arthritis, if one accepts that the child has juvenile arthritis, possibly related to psoriasis. Heberden refers to juvenile rheumatism but it is not clear whether he includes the chronic form (presumably rheumatoid arthritis) as well as the acute rheumatism (presumably rheumatic fever). However, one may speculate that for the opening of the Royal National Hospital for Rheumatic Diseases William Hoare was in fact deliberately emphasising that the same disease may affect men, women, and children.

Landré-Beauvais\(^{1}\) first recognised the disease at the Salpêtrière among 'the common people who always have a weak constitution.' He pointed out that:

'this type is nevertheless also worthy of the attention of a physician who, although especially bound by the obligations which his state imposes on him, and the necessities which nature prescribes to all kind and sensible human beings, must share his case between the rich and the poor' (p. 6).

The Royal National Hospital for Rheumatic Diseases, like the Salpêtrière, was also established for the poor. One assumes that William Hoare's painting shows 3 such persons. However, rheumatoid arthritis was apparently not confined to the lower classes. William Heberden points out 'that acute and chronic rheumatism attack indiscriminately males and females, rich and poor'. We will never know whether rheumatoid arthritis was in fact less common in the upper classes. However, there is no doubt that gout was a frequent affliction in this group and in view of what we now know regarding the mutual exclusivity of gout and rheumatoid arthritis, it is interesting to speculate whether this may have conferred some protection from rheumatoid disease.

Anglo-French interactions

Alfred Baring Garrod suggested the term 'rheumatoid arthritis' in the first edition of his book,\(^{27}\) published in 1859:

'Although unwilling to add to the number of names, I cannot help expressing a desire that one might be found for this disease, not implying any necessary relation between it and either gout or rheumatism. Perhaps Rheumatoid Arthritis would answer the object, by which term I should wish to imply an inflammatory affection of the joints, not unlike rheumatism in some of its characters, but differing materially from it' (p. 534).

Garrod found no evidence of heart disease in rheumatoid arthritis and 'but little febrile disturbance' and therefore distinguished this condition from rheumatic fever.

A French translation of the second edition (1863) of Garrod's book with extensive annotations by Charcot was published in 1867 by Adrien Delahaye of Paris.\(^{4}\) This included several plates taken from Charcot's own work Leçons Cliniques sur les Maladies des Vieillards published in the same year by Delahaye.\(^{3}\) Charcot specifically mentioned the absence of cardiac involvement in rheumatoid arthritis in his thesis of 1853. However, in the annotations to Garrod's book he reported his subsequent pathological studies which demonstrated frequent pericarditis and endocarditis in patients with chronic articular rheumatism who had not had rheumatic fever. This led him to propose a unitarian classification in his Leçons which were based on his lectures at La Salpêtrière. He suggested that acute articular rheumatism (rheumatic fever) and chronic articular
rheumatism (rheumatoid arthritis) were different manifestations of the same underlying cause.

Despite this difference Garrod and Charcot clearly shared considerable mutual respect. Garrod frequently referred to Charcot’s annotations in the third edition of his book which was published in 1876. He also included several of Charcot’s illustrations from his Leçons showing rheumatoid deformities of the hands. For his part Charcot often mentioned Garrod’s opinions in his Leçons. He followed Garrod’s lead in including Heberden’s rheumatism (digitorum nodi) as a form of rheumatoid arthritis. He also included other forms of osteoarthritis such as morbus coxae senilis under the heading of partial chronic articular rheumatism. However, both men remained firm in their separate convictions regarding rheumatic fever. Charcot’s classification of rheumatic diseases was not challenged in France until Jacques Forestier proposed a new classification in 1931 essentially in line with British concepts. The modern distinction between rheumatoid arthritis and osteoarthritis had earlier been made in England by Garrod’s son, Archibald Edward, in 1910. Forestier was also influenced by Archibald Edward Garrod’s book, which was based on his father’s case notes. Forestier’s copy of this book had been presented to his father Henri, one of the founders of the International League against Rheumatism, by the author. The section on rheumatoid arthritis contains frequent references to Charcot’s important historical and clinical contributions.

Copeman has blamed Charcot for putting ‘back the pathological clock by decreeing that all forms of chronic arthritis, other than those due to gout, were merely variants and should all be described under the single heading ‘Rhumatisme articulaire chronique progressif’. However, it was in fact A. B. Garrod who first proposed ‘Heberden’s rheumatism’ as a form of rheumatoid arthritis. Garrod did distinguish rheumatic fever as a separate condition but it is ironical that it was partly the accuracy of Charcot’s pathological findings which led him to confuse the 2 conditions. More recent studies have confirmed the frequency of pericarditis in rheumatoid disease.

Forestier has commented on the friendly cooperation between English and French physicians in the field of rheumatology. The chain of personal associations between Charcot, the Garrods and the Forestiers has not been documented and deserves further study. However, it seems particularly appropriate that the XVth International Congress of Rheumatology should be held in Paris in 1981, 100 years after Charcot’s Leçons were first published in English translation.

References

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